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ESTIMATED CONTRIBUTION OF CODED WIRE TAGGED RELEASES OF CHINOOK SALMON (Oncorhynchus tshawytscha) TO THE COMMERCIAL FISHERIES OF SOUTHEASTERN ALASKA IN 1980

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September 1986

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Don W. Collinsworth
Commissioner

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ESTIMATED CONTRIBUTION OF CODED WIRE TAAGGED RELEASES OF CHINOOK SALMON *(Oncorhynchus tshawytscha)* TO THE COMMERCIAL FISHERIES OF SOUTHEASTERN ALASKA IN 1980[1]

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ABSTRACT

The contribution of coded wire tagged chinook salmon *(Oncorhynchus tshawytscha)* hatchery, experimental, and wild stock release groups to the Southeastern Alaska troll, gillnet, and purse seine commercial fisheries for calendar year 1980 is estimated. Approximately 93% of the commercial catch was harvested in sampled catch strata. No sampling occurred during the 1 January to 14 April winter troll fishery. Overall, 13% 5%, and 32% of the gillnet, purse seine, and troll catches, respectively, were sampled. A total of 181 different tag codes were recovered from the commercial catches during the 1980 calendar year. Releases from Alaska, British Columbia, Washington, and Oregon were recovered in the catch. Alaska hatchery and experimentally reared chinook salmon contributed an estimated 6,133 fish to the total catch, or 1.90% of the 322,848 commercial chinook salmon harvest. British Columbia tagged releases contributed an estimated 35,435 (10.97%), Washington 10,025 (3.11%), and Oregon 4,309 (1.5%) chinook salmon to the commercial harvest. Estimated contributions by region and hatchery did not include either the catch or untagged releases or wild stocks, or of unsampled strata. In addition to hatchery and experimental production, wild stocks of chinook salmon represented by 13 tag codes were present in the commercial catches. The standard error associated with the contribution of each tagged release of fish and with the total contribution of each hatchery and region was estimated using a multivariate hypergeometric model.

KEY WORDS: coded wire tags, chinook salmon, *Oncorhynchus tshawytscha*, Southeastern Alaska, hatchery contributions, variance estimates.

INTRODUCTION

Coded wire tags (CWTs) are used to identify stocks of salmon of both wild and hatchery production. Coded wire tagging and recovery programs serve to evaluate the quality and effectiveness of salmon rearing facilities and to differentiate between natural and hatchery produced salmon in mixed stock fisheries. The data which can be obtained following recovery of the tags may also provide iinformation on migratory timing and direction of travel, survival, rates of growth, age of maturity, and other biological parameters of tagged stocks.

The chinook salmon *(Oncorhynchus tshawytscha)* CWT recovery program was implemented in Southeastern Alaska in 1973. During the 1970's, the Southeastern Alaska chinook salmon harvest averaged 320,000 fish, over 90% of which were caught by the hand and power troll fishery. Wild and hatchery stocks of chinook salmon originating from Alaska, British Columbia, Washington, Idaho, Oregon, and California are harvested in Southeastern Alaska. Data from the 1975, 1976, and 1978 troll fishery CWT tag recovery program were published by Davis (1976), Davis and Selin (1977), and Davis et al. (1979). Funk (1981) presents a detailed analysis of the 1979 coded wire tag recoveries. The 1982 coded wire tag recovery data have been published by Clark et al. (1985), and those of 1983 by Marshall and Clark (1986).

This reports presents the 1980 CWT recovery data for Southeastern Alaska in the format of Clark et al. (1985). The number of tags and estimated total number of chinook salmon contributed to the Southeastern Alaska commercial catch is presented for each tag code recovered by fishery, area, and time strata sampled, along with the standard errors of each estimate. There was no attempt to expand contributions over unsampled strata. The total contribution and associated standard errors of Washington, Oregon, British Columbia, and Alaska releases of chinook salmon to the 1980 Southeastern Alaska fisheries is finally estimated for each gear type, area, and time strata. The reader is cautioned that estimated contributions in this report represent only contributions from CWT releases as reported in the Pacific Marine Fisheries Commission CWT documents. In particular, no attempt has been made to estimate contributions from untagged hatchery releases or from tagged or untagged wild stocks. Therefore, contributions designated by facility, agency, or jurisdiction in this report represent only aggregations of CWT release groups.

STUDY AREA AND CONDUCT OF THE FISHERIES

Southeastern Alaska (Region I) includes both Federal and Alaskan waters between Cape Suckling on the north and Dixon Entrance on the south (Figure 1). The region is divided into 25 statistical areas (termed districts by management) composed of inside Districts 101 to 115; Yakutat area Districts 182, 183, and 186; offshore Districts 150, 152, 154, 157, 181, and 189; and Cape Fairweather to Cape Spencer District 116. Purse seine and gillnet harvests occur in discrete areas, allowing the catch and sample data to be attributed to specific districts. Since the troll fleet is highly mobile,

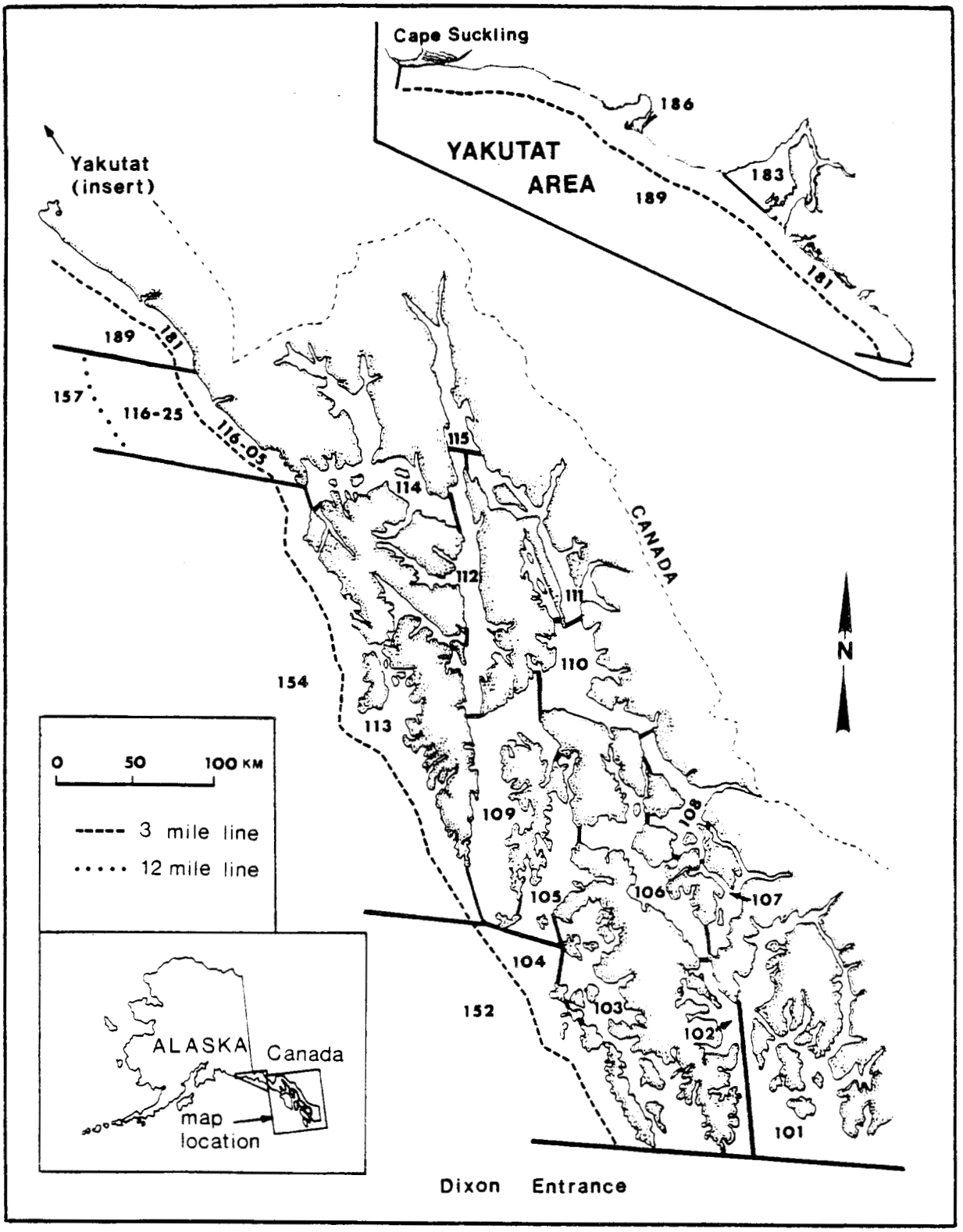

Figure 1. Map of Southeastern Alaska showing the statistical fishing areas and four-area groupings used for analysis of coded wire tag recovery in the troll fishery.

troll catch and sample data are sometimes not attributable to a single statistical district and must be assigned to larger areas which are composed of several districts. Troll fishery catch and sample data are also reported by PMFC (or 9-area) groupings and by quadrant (or 4-area) groupings. The statistical districts in each PMFC area and quadrant are listed in Table 1.

Four types of gear are employed to commercially harvest chinook salmon in Southeastern Alaska: fish trap, gillnet, purse seine, and troll gear. Fish traps are restricted to the Annette Island Fishery Reserve and harvest relatively few chinook salmon (1970 to 1982 annual average of 180 fish). The gillnet fishery occurs in Statistical Districts 101, 106, 108, 111, 115, 182, and 183. Purse seine harvest is allowed in Districts 101 to 107, 109, 110, and 112 to 114. Catches of chinook salmon by the gillnet and purse seine fleet are generally incidental to directed sockeye *(O. nerka)*, chum *(O. keta)*, pink *(O. gorbuscha)*, or coho *(O. kisutch)* salmon fisheries. Annual purse seine catches have averaged 7,394 chinook salmon from 1970 through 1980, while gillnet catches have averaged 15,198 chinook salmon during the same time period.

Commercial troll catch occurs, with some restrictions, in all districts and chinook and coho salmon are primarily the target species. A minimum size limit of 71 mm (28 in) from snout to tail fork is in effect for all troll caught chinook salmon. The number of troll caught chinook salmon has averaged around 300,000 fish from 1970 through 1980. In 1980, landings from 939 power troll vessels and 1,666 hand troll vessels were recorded. Hand trollers accounted for about 17% of the chinook salmon troll catch in 1980.

Troll harvest of chinook salmon was regulated principally by time and area closures. Management of the troll fishery is oriented around an 'accounting year', which for 1980 began on 1 October 1979 and ended on 30 September 1980. The winter portion of the 'accounting year' extended from 1 October 1979 through 14 April 1980, with the following portion designated as the summer fishery. The data for this report are taken from calendar year records, 1 January 1980 to 31 December 1980, and thus include catches from both the 1980 and 1981 'accounting years'.

Several major regulatory changes were imposed by the Alaska Board of Fisheries and North Pacific Fishery Management Council prior to the 1980 troll season. The most important of these were the provisions for a 10-day closure in mid-July and the adoption of policies to regulate the troll fishery in-season to keep the chinook catch from exceeding the optimum yield range set at 286,000 to 320,000 fish. Fishing during the 1980 accounting year winter season was restricted to those areas lying east of the surfline and the waters of Yakutat Bay. The summer fishery opened, with some restrictions, in all areas 16 April. The 10-day closure was put into effect 15 July because inadequate numbers of coho salmon were moving to the inside waters. The troll fishery was again closed 20 September when higher than expected chinook salmon catches occurred during August and early September. The 1981 accounting year winter troll fishery opened 15 October and continued through the end of the year.

Catch and sample data were analyzed by statistical week for the net fisheries and by either statistical week or grouped statistical weeks for

Table 1. Statistical areas belonging to each Pacific Marine Fisheries Commission Area and to each quadrant of Southeastern Alaska.

PMFC Area	Abreviation	Statistical Areas (Districts)
Northern Outside	NOUT	116, 157, 181, 183, 186, 189
Central Outside	COUT	113, 154
Southern Outside	SOUT	103, 104, 152
Southern Inside	SIN	101, 102, 150
Southern Intermed.	SNTR	105, 109, 110
Central Inside	CIN	106, 107, 108
Stephens Passage	STEP	111
Central Intermed.	CNTR	112, 114
Lynn Canal	LYNN	115

Quadrant Area	Name (Tag Lab)	Statistical Areas (Districts)
Northern Outside	Northwest	113, 114, 116, 154, 157, 181, 183, 186, 189
Northern Inside	Northeast	109, 110, 111, 112, 115
Southern Outside	Southwest	103, 104, 150, 152
Southern Inside	Southeast	101, 102, 105, 106, 107, 108

the troll fishery[1]. Purse seine and gillnet harvests were regulated by discrete openings, allowing catch and sample data to be assigned to distinct statistical weeks. Troll deliveries may have included catch from multiple statistical weeks which were assigned to a single statistical week. Therefore, some errors exist in the commercial catch, sample size, and tag recovery data which cannot be resolved. Due to small catches during the winter fishery from 1 January to 15 April 1980, all data were grouped into one time stratum.

METHODS

Catch Sampling

The Southeastern Alaska ports of Craig, Ketchikan, Port Alexander, Petersburg, Sitka, Juneau, Metlakatla, Excursion Inlet, Pelican, Hoonah, Wrangell, and Kake were sampled. Sampling was conducted on fish landed by tenders of both the net and troll fisheries and from landings of individual boats. Random sampling of at least 20% of the fish harvested by troll gear, district, and week was intended. The net fisheries were sampled when possible. The following statistics were recorded for each commercial boat or tender sampled: port of landing, processor, date sold and landed, boat identification, fishing gear, statistical area or areas of harvest, sample type (random or select), number of fish sampled (by species) for a missing adipose fin, number of adipose clipped fish counted and marked, the snout to fork length, the appearance of each adipose clip (good or questionable), and flesh color (red or white) of each fish lacking an adipose fin. When a salmon without an adipose fin was found, the head was marked with a numbered plastic strap tag. Samplers subsequently attempted to retrieve all marked heads after the fish were processed, however, some heads were lost between placement of the head strap and shipment to the tag lab.

Tag Decoding

Chinook salmon heads which arrived at the tag lab were examined for the presence of a CWT. If the head contained a CWT, the tag was removed and decoded. All information was entered into a Honeywell mainframe computer located at the University of Alaska, Fairbanks, and later copied onto tape and stored at the State of Alaska's IBM mainframe computer located in Juneau, Alaska.

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1 A statistical week of a 7-day period beginning at 12:01 AM Sunday and running through 12:00 midnight the following Saturday. Each week of the year is sequentially numbered. The weeks and corresponding calendar dates for 1980 are listed in Table 2.

Table 2. Statistical Weeks and corresponding calendar dates in 1980.

Stat Week	First day of Week	Last day of Week	Stat Week	First day of Week	Last day of Week
1	Jan 1	Jan 5	28	Jul 6	Jul 12
2	Jan 6	Jan 12	29	Jul 13	Jul 19
3	Jan 13	Jan 19	30	Jul 20	Jul 26
4	Jan 20	Jan 26	31	Jul 27	Aug 2
5	Jan 27	Feb 2	32	Aug 3	Aug 9
6	Feb 3	Feb 9	33	Aug 10	Aug 16
7	Feb 10	Feb 16	34	Aug 17	Aug 23
8	Feb 17	Feb 23	35	Aug 24	Aug 30
9	Feb 24	Mar 1	36	Aug 31	Sep 6
10	Mar 2	Mar 8	37	Sep 7	Sep 13
11	Mar 9	Mar 15	38	Sep 14	Sep 20
12	Mar 16	Mar 22	39	Sep 21	Sep 27
13	Mar 23	Mar 29	40	Sep 28	Oct 4
14	Mar 30	Apr 5	41	Oct 5	Oct 11
15	Apr 6	Apr 12	42	Oct 12	Oct 18
16	Apr 13	Apr 19	43	Oct 19	Oct 25
17	Apr 20	Apr 26	44	Oct 26	Nov 1
18	Apr 27	May 3	45	Nov 2	Nov 8
19	May 4	May 10	46	Nov 9	Nov 15
20	May 11	May 17	47	Nov 16	Nov 22
21	May 18	May 24	48	Nov 23	Nov 29
22	May 25	May 31	49	Nov 30	Dec 6
23	Jun 1	Jun 7	50	Dec 7	Dec 13
24	Jun 8	Jun 14	51	Dec 14	Dec 20
25	Jun 15	Jun 21	52	Dec 21	Dec 27
26	Jun 22	Jun 28	53	Dec 28	Dec 31
27	Jun 29	Jul 5			

Commercial Catch Data

Commercial catch data were obtained from fish tickets received from buyers of fish. Each buyer is required by Alaskan statute to maintain a record for each delivery of the type of vessel and gear, the date of landing, the number and pounds of each species and the statistical area of capture. During summarization of the data, sample size which exceeded the catch were encountered in a few strata having small catches. In these cases, the sample size was made equal to the catch.

Tagging and release data associated with each microwire tag code are published by the PMFC (Johnson 1985). The species, run type, brood year, agency conducting the tagging study, hatchery of rearing (or release site for wild stocks), release site, month and year of release, estimated number of fish released carrying a coded wire tag, estimated number of untagged fish released, estimated percentage of tagged fish which shed the tag before release, and type of production (hatchery, experimental, or wild) are reported for each tag code. The estimated contribution of chinook salmon belonging to each tag code recovered in the fishery were merged with the PMFC tagging data and are being published under separate cover as appendices to this report[1]. The fish age at recovery is expressed in European notation[2]. The freshwater age of fish released from wild stocks is assumed to be the same as the fishes age at the time of tagging. Commercial catch data, CWT recovery data, and the tagging and release data are accessible from tapes located at the State's IBM mainframe located in Juneau or on the University of Alaska's (Honeywell) mainframe. Data on the mainframe was downloaded to floppy disks and summarized with basic and pascal language programs operating on microcomputers.

Estimation Procedures

Methods for estimating the number of tags of a given tag code in the commercial catch and the variance of this estimate, the number of fish in the entire release group identified by the given tag code and the variance of this estimate, and the total number of fish originating from a particular agency or geographic region in the commercial catch and the variances and covariances associated with this estimate are derived and discussed at length in Clark and Bernard (1986). This method estimates the total number of fish of a given release group in a time-area-gear stratum by adjusting the number of tags decoded with expansion factors for lost tags, lost heads, the unsampled fraction of commercial catch, and the untagged fish in the release group. The variance of this estimate is, in part, a function of the

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1 The appendix tables are available on request from the Alaska Department of Fish and Game, Division of Commercial Fisheries, P.O. Box 3-2000, Juneau, Alaska, 99802.

2 European notation: Numerals preceding the decimal refer to the number of freshwater annuli, numerals following the decimal are the number of marine annuli. Total age from the brood year is the sum of these two numbers plus one.

uncertainty in estimating the number of tags of a given tag code in the lost tags, the lost heads, and the unsampled fraction of the commercial catch. The variance is also dependent upon the uncertainty of the tagged to untagged ratio in a given release group in the commercial catch, which in turn is dependent upon the tagged to untagged ratio in the hatchery release. Formulas for the estimates and the variances are presented in Clark et al. (1985), Marshall and Clark (1986), and Clark and Bernard (1986).

RESULTS

The goal of sampling at least 20% of the total commercial salmon troll catch was achieved. The percentage of the catch sampled increased when it was possible for samples from mixed district catches to be assigned to PMFC or quadrant area strata. Overall, 20% of the commercial troll caught fish were sampled when grouped by district (Table 3), 27% were sampled by PMFC area (Table 4), and 32% by quadrant area (Table 5). Less than half of the troll districts had sampliing proportions exceeding .19. All PMFC areas had sampling proportions greater than .19 except SOUT (.19), CIN (.08), and LYNN (0.00). Of the troll quadrants, Southwest had the lowest sampling proportion (.19). A total of 96,075 fish were sampled in the four quadrants. Of these, 80,765 fish (84%) could be assigned to a PMFC area, and 58,963 (61%) to a district of catch. The differing totals are a result of the mobile nature of the troll fleet and demonstrate the limitations of catch data assigned to a particular district when fish are often caught in more than one district. Because a large proportion of the troll catch data is of mixed or unknown district and PMFC area, quadrant groupings of the data were chosen as the most appropriate to estimate total contributions of a tagged release group to the troll fishery.

Thirteen percent of the gillnet catch (Table 6) and 5% of the purse seine catch (Table 7) of chinook salmon were sampled. Only two gillnet districts (108 and 111) had sampling proportions greater than .19; the sampling proportion never exceeded .15 in any district for the purse seine fishery.

During the 1980 chinook sampling program, 3,895 heads were marked with a strap tag. The heads from 257 fish did not arrive at the lab and 295 heads did not contain a tag. Four tags were found to be unreadable, 68 were lost prior to decoding, 2 contained an incongruous code, and 2 could not be associated with a gear type. The 3,267 tags which remained represented 181 different tag codes. The troll fishery accounted for 3,194 of these tags, the purse seine fishery for 17 tags, and the gillnet fishery for 66 tags. A statistical week of catch was recorded for all recovered tags.

Expansion factors used to correct for lost heads varied by time, area, and gear type. Of the 79 adipose-less fish sampled from gillnet catches, 11 heads (13.9%) did not arrive at the tag lab (Table 8). Ten percent of the strap tagged heads from the purse seine catch (Table 9), and less than 7% of the strap tagged heads from the troll catch were lost prior to arrival at the head tag lab (Tables 10-12).

Table 3. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and district for chinook salmon harvested by hand and power troll gear in Southeastern Alaska in 1980 (1/1/80 to 12/31/80).

	Troll District																											
	101			102			103			104 & 152			105			106			107			108			109			110		
Stat Week	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
1 -16				53	0	0.00	110	0	0.00				434	0	0.00	117	0	0.00	68	0	0.00	50	0	0.00	269	0	0.00	114	0	0.00
17-20	302	0	0.00	278	0	0.00	1627	0	0.00	1756	0	0.00	450	0	0.00	315	0	0.00	469	0	0.00				1324	0	0.00	66	0	0.00
21-22	1059	0	0.00	650	105	0.16	1148	87	0.08	4019	81	0.02	274	36	0.13	308	1	0.00	681	70	0.10				539	103	0.19	691	408	0.59
23-24	630	8	0.01	1621	59	0.04	1935	15	0.01	6274	1259	0.20	282	0	0.00	232	0	0.00	704	0	0.00				934	365	0.39	1873	783	0.42
25-26	1410	378	0.27	2169	227	0.10	2018	30	0.01	5743	450	0.08	194	0	0.00	475	46	0.10	480	11	0.02	109	16	0.15	1593	927	0.58	1513	714	0.47
27-29	1647	633	0.38	2119	671	0.32	1662	25	0.02	3990	273	0.07	175	175	1.00	567	57	0.10	551	0	0.00	55	0	0.00	4458	2167	0.49	1910	1046	0.55
31-32	970	285	0.29	872	48	0.06	1833	166	0.09	4016	86	0.02	119	1	0.01	205	0	0.00	180	0	0.00	1	0	0.00	2201	1229	0.56	1246	294	0.24
33-34	1208	318	0.26	1060	162	0.15	493	11	0.02	2124	93	0.04	418	52	0.12	1358	298	0.22	84	0	0.00	22	5	0.23	1599	647	0.40	990	226	0.23
35-36	851	259	0.30	544	112	0.21	171	0	0.00	874	65	0.07	160	8	0.05	312	3	0.01	98	0	0.00	166	11	0.07	655	250	0.38	561	266	0.47
37-39	499	99	0.20	451	46	0.10	38	0	0.00	118	0	0.00	33	0	0.00	238	8	0.03	110	0	0.00	2	0	0.00	299	117	0.39	423	244	0.58
42-53	423	0	0.00	35	0	0.00	180	0	0.00							95	0	0.00	249	0	0.00	114	0	0.00	247	0	0.00	158	0	0.00
Total	8999	1980	0.22	9852	1430	0.15	11215	334	0.03	28914	2307	0.08	2539	272	0.11	4222	413	0.10	3674	81	0.02	519	32	0.06	14118	5805	0.41	9545	3981	0.42

	Troll District																											
	111			112			113 & 154			114			115			116 & 157			181			189			OTHER			TOTAL		
Stat Week	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
1 -16				6	0	0.00	2342	0	0.00	483	0	0.00																4046	0	0.00
17-20				111	0	0.00	7602	223	0.03	2186	0	0.00				1652	78	0.05	390	0	0.00				2331	0	0.00	20859	301	0.02
21-22				223	0	0.00	8941	1484	0.17	1431	12	0.01				1304	526	0.40	1982	1612	0.81	2487	1198	0.48	25	0	0.00	25762	5723	0.22
23-24				581	324	0.56	10209	2444	0.24	2118	137	0.06				1484	74	0.05	1110	71	0.06	3603	1601	0.44	22	0	0.00	33612	7140	0.21
25-26	129	94	0.73	998	700	0.70	14526	3607	0.25	1737	42	0.02	167	0	0.00	2751	224	0.08	1150	217	0.19	4533	806	0.18	714	0	0.00	42409	8489	0.20
27-29	257	257	1.00	1985	1204	0.61	27088	4586	0.17	2148	189	0.09	68	0	0.00	4723	779	0.16	852	605	0.71	4278	1151	0.27	637	0	0.00	59170	13818	0.23
31-32	234	71	0.30	994	630	0.63	18163	3134	0.17	1437	117	0.08	59	0	0.00	1258	6	0.00	12	0	0.00	712	260	0.37	229	0	0.00	34741	6327	0.18
33-34	421	170	0.40	791	200	0.25	20338	4031	0.20	1152	284	0.25	16	0	0.00	3461	352	0.10				880	459	0.52	492	0	0.00	36907	7308	0.20
35-36				532	144	0.27	19507	4955	0.25	812	6	0.01	1	0	0.00	2906	432	0.15	57	0	0.00	1187	272	0.23	278	0	0.00	29672	6783	0.23
37-39	4	4	1.00	248	246	0.99	7741	2272	0.29	1110	9	0.01	8	0	0.00	864	29	0.03	135	0	0.00				336	0	0.00	12657	3074	0.24
42-53				1	0	0.00	54	0	0.00	181	0	0.00																1737	0	0.00
Total	1045	596	0.57	6470	3448	0.53	136511	26736	0.20	14795	796	0.05	319	0	0.00	20403	2500	0.12	5688	2505	0.44	17680	5745	0.33	5064	0	0.00	301572	58963	0.20

Table 4. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and nine area (PMFC area) grouping for chinook salmon harvested by hand and power troll gear in Southeastern Alaska in 1980 (1/1/80 to 12/31/80).

	PMFC Troll Area																														
	NOUT			COUT			SOUT			SIN			SNTR			CIN			STEP			CNTR			LYNN			TOTAL		
Stat Week	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
1 -16				2342	0	0.00	110	0	0.00	53	0	0.00	817	0	0.00	235	0	0.00				489	0	0.00				4046	0	0.00
17-20	4373	78	0.02	7602	223	0.03	3383	0	0.00	580	0	0.00	1840	0	0.00	784	0	0.00				2297	0	0.00				20859	301	0.01
21-22	5793	3784	0.65	8941	1599	0.18	5167	168	0.03	1714	105	0.06	1504	547	0.36	989	71	0.07				1654	12	0.01				25762	6286	0.24
23-24	6210	3030	0.49	10209	2657	0.26	8209	1274	0.16	2260	184	0.08	3089	1179	0.38	936	83	0.09				2699	461	0.17				33612	8868	0.26
25-26	8883	3872	0.44	14526	4509	0.31	7761	3929	0.51	3844	717	0.19	3300	1787	0.54	1064	73	0.07	129	94	0.73	2735	742	0.27	167	0	0.00	42409	15723	0.37
27-29	10481	3301	0.31	27088	7353	0.27	5652	759	0.13	3775	1342	0.36	6543	3703	0.57	1173	101	0.09	257	257	1.00	4133	1394	0.34	68	0	0.00	59170	18210	0.31
31-32	2195	366	0.17	18163	4793	0.26	5849	614	0.10	1858	384	0.21	3566	1538	0.43	386	0	0.00	234	71	0.30	2431	747	0.31	59	0	0.00	34741	8513	0.25
33-34	4833	1235	0.26	20338	6155	0.30	2617	546	0.21	2268	538	0.24	3007	999	0.33	1464	303	0.21	421	170	0.40	1943	484	0.25	16	0	0.00	36907	10430	0.28
35-36	4428	1021	0.23	19507	6472	0.33	1045	116	0.11	1395	379	0.27	1376	524	0.38	576	14	0.02				1344	150	0.11	1	0	0.00	29672	8676	0.29
37-39	1305	29	0.02	7741	2886	0.37	156	38	0.24	980	161	0.16	755	377	0.50	350	8	0.02	4	4	1.00	1358	255	0.19	8	0	0.00	12657	3758	0.30
42-53				54	0	0.00	180	0	0.00	458	0	0.00	405	0	0.00	458	0	0.00				182	0	0.00				1737	0	0.00
Total	48501	16716	0.34	136511	36647	0.27	40129	7444	0.19	19185	3810	0.20	26202	10654	0.41	8415	653	0.08	1045	596	0.57	21265	4245	0.20	319	0	0.00	301572	80765	0.27

Table 5. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and four area (quadrant) grouping for chinook salmon harvested by hand and power troll gear in South eastern Alaska in 1980 (1/1/80 to 12/31/80).

	Troll Quadrant														
	Northwest			Southwest			Northeast			Southeast			TOTAL		
Stat Week	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
1 -16	2825	0	0.00	110	0	0.00	389	0	0.00	722	0	0.00	4046	0	0.00
17-20	14161	1067	0.08	3383	0	0.00	1501	0	0.00	1814	0	0.00	20859	1067	0.05
21-22	16165	6147	0.38	5167	168	0.03	1453	588	0.40	2977	212	0.07	25762	7115	0.28
23-24	18537	6727	0.36	8209	1274	0.16	3388	1711	0.51	3478	354	0.10	33612	10066	0.30
25-26	25146	10242	0.41	7761	3929	0.51	4400	2644	0.60	5102	1244	0.24	42409	18059	0.43
27-29	39717	14989	0.38	5652	759	0.13	8678	5237	0.60	5123	1876	0.37	59170	22861	0.39
31-32	21795	5938	0.27	5849	614	0.10	4734	2236	0.47	2363	428	0.18	34741	9216	0.27
33-34	26323	9130	0.35	2617	546	0.21	3817	1499	0.39	4150	1127	0.27	36907	12302	0.33
35-36	24747	9375	0.38	1045	116	0.11	1749	791	0.45	2131	738	0.35	29672	11020	0.37
37-39	10156	3394	0.33	156	38	0.24	982	649	0.66	1363	288	0.21	12657	4369	0.35
42-53	235	0	0.00	180	0	0.00	406	0	0.00	916	0	0.00	1737	0	0.00
Total	199807	67009	0.34	40129	7444	0.19	31497	15355	0.49	30139	6267	0.21	301572	96075	0.32

Table 6. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and district for chinook salmon harvested by fishtrap and by the gillnet fleet in Southeastern Alaska in 1980.

Stat Week	Fishtrap 101			Gillnet District 101			106			108			111			115			182			183			TOTAL		
	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
23				115	0	0.00													755	0	0.00				870	0	0.00
24				138	27	0.20													426	0	0.00	33	0	0.00	597	27	0.05
25				285	17	0.06	92	7	0.08	328	32	0.10	627	304	0.48	256	0	0.00	300	0	0.00	57	0	0.00	1945	360	0.19
26				291	60	0.21	132	6	0.05	76	26	0.34	398	156	0.39	17	0	0.00	532	0	0.00	49	0	0.00	1495	248	0.17
27	7	0	0.00	255	57	0.22	59	0	0.00	49	13	0.27	264	86	0.33				340	0	0.00	19	0	0.00	986	156	0.16
28	40	0	0.00	213	1	0.00	47	0	0.00	16	2	0.13	260	80	0.31				132	0	0.00	19	0	0.00	687	83	0.12
29	46	0	0.00	89	0	0.00	98	0	0.00	31	16	0.52	328	4	0.01				53	0	0.00	17	0	0.00	616	20	0.03
30	41	0	0.00	34	0	0.00	41	4	0.10	60	0	0.00	183	29	0.16	8	0	0.00	24	0	0.00	5	0	0.00	355	33	0.09
31	3	0	0.00	19	0	0.00	63	2	0.03				68	30	0.44	10	1	0.10	8	0	0.00	5	0	0.00	173	33	0.19
32	2	0	0.00	22	0	0.00							116	49	0.42	31	0	0.00	3	0	0.00	8	0	0.00	180	49	0.27
33				77	0	0.00	8	0	0.00	12	12	1.00	57	19	0.33	37	2	0.05	3	0	0.00	5	0	0.00	199	33	0.17
34				20	1	0.05	9	0	0.00	8	4	0.50	59	16	0.27	6	4	0.67	4	0	0.00	1	0	0.00	107	25	0.23
35				7	0	0.00	23	0	0.00	47	22	0.47	29	15	0.52	39	0	0.00	2	0	0.00				147	37	0.25
36				2	0	0.00	8	0	0.00	4	0	0.00	8	1	0.13	5	0	0.00							27	1	0.04
37													16	16	1.00	7	0	0.00							23	16	0.70
38				2	0	0.00							8	0	0.00	5	0	0.00							15	0	0.00
39													1	0	0.00	19	2	0.11							20	2	0.10
Total	139	0	0.00	1569	163	0.10	580	19	0.03	631	127	0.20	2422	805	0.33	440	9	0.02	2582	0	0.00	218	0	0.00	8442	1123	0.13

Table 7. Commercial catch, number of samples, and proportion of commercial catch sampled by statistical week and district for chinook salmon harvested by the purse seine fleet in Southeastern Alaska in 1980.

Stat Week	Purse Seine District 101			102			103			104			105			109		
	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
28										2676	355	0.13				0	0	0.00
29										2459	0	0.00				0	0	0.00
30	36	0	0.00	11	0	0.00				1376	0	0.00				0	0	0.00
31	28	12	0.43	26	1	0.04				1333	189	0.14				0	0	0.00
32	80	3	0.04	817	0	0.00	3	0	0.00	1982	59	0.03				5	0	0.00
33	58	0	0.00	57	0	0.00	29	0	0.00	586	0	0.00	6	0	0.00	56	10	0.18
34	70	2	0.03	36	0	0.00	31	0	0.00	199	1	0.01	2	0	0.00	54	10	0.19
35	13	0	0.00	20	0	0.00	13	0	0.00	19	0	0.00				11	0	0.00
36	7	0	0.00	7	7	1.00				14	0	0.00				6	0	0.00
38				1	0	0.00										0	0	0.00
39																0	0	0.00
Total	292	17	0.06	975	8	0.01	76	0	0.00	10644	604	0.06	8	0	0.00	132	20	0.15

Stat Week	Purse Seine District 110			112			113			114			TOTAL		
	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop	Catch	Samp	Prop
28													2676	355	0.13
29													2459	0	0.00
30							303	0	0.00				1726	0	0.00
31				13	0	0.00				2	0	0.00	1402	202	0.14
32	9	0	0.00	2	2	1.00							2898	64	0.02
33				11	0	0.00							803	10	0.01
34				3	0	0.00	1	1	1.00	10	0	0.00	406	14	0.03
35				1	0	0.00							77	0	0.00
36										20	0	0.00	54	7	0.13
38				2	0	0.00				2	0	0.00	5	0	0.00
39										1	0	0.00	1	0	0.00
Total	9	0	0.00	32	2	0.06	304	1	0.00	35	0	0.00	12507	652	0.05

Table 8. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook salmon counted (Frac) from the 1980 fishtrap and gillnet fisheries in Southeastern Alaska by statistical week and ADF&G district.

	Gillnet District														
	101			106			108			111			TOTAL		
Stat Week	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
25	1	0	0.000	3	0	0.000	5	0	0.000	8	0	0.000	17	0	0.000
26	2	0	0.000				5	0	0.000	10	2	0.200	17	2	0.118
27	2	1	0.500				5	1	0.200	6	0	0.000	13	2	0.154
28	1	0	0.000							2	0	0.000	3	0	0.000
29							6	4	0.667				6	4	0.667
30										1	0	0.000	1	0	0.000
31										2	0	0.000	2	0	0.000
33							9	3	0.333				9	3	0.333
34							4	0	0.000				4	0	0.000
35							4	0	0.000				4	0	0.000
37										3	0	0.000	3	0	0.000
Total	6	1	0.167	3	0	0.000	38	8	0.211	32	2	0.063	79	11	0.139

Table 9. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook salmon counted (Frac) from the 1980 purse seine fisheries in Southeastern Alaska by statistical week and ADF&G district.

	Purse Seine District								
	101			104			TOTAL		
Stat Week	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
28				12	3	0.250	12	3	0.250
31	2	0	0.000	4	0	0.000	6	0	0.000
32				10	0	0.000	10	0	0.000
34	1	0	0.000				1	0	0.000
Total	3	0	0.000	26	3	0.115	29	3	0.103

Table 10. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook salmon counted (Frac) from the 1980 (calender year) troll fisheries in Southeastern Alaska by statistical week and ADF&G district.

	Troll District																											
	101			102			103			104 & 152			105			106			108			109			110		
Stat Week	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
2																									0	0	0.000
3				2	0	0.000	3	0	0.000	3	0	0.000	1	0	0.000							4	0	0.000	34	1	0.029
4				2	0	0.000				21	0	0.000										32	1	0.031	91	5	0.055
5	11	0	0.000	8	0	0.000				16	2	0.125				18	5	0.278	1	0	0.000	80	14	0.175	74	3	0.041
6	17	0	0.000	17	0	0.000				8	1	0.125	12	0	0.000	2	0	0.000				222	11	0.050	102	5	0.049
7	12	0	0.000				3	0	0.000	2	0	0.000	1	0	0.000							120	2	0.017	54	3	0.056
8	17	1	0.059	4	1	0.250				2	0	0.000	3	1	0.333	4	0	0.000	2	1	0.500	89	10	0.112	38	2	0.053
9	11	0	0.000	4	0	0.000				2	0	0.000							3	0	0.000	26	0	0.000	32	0	0.000
10	3	0	0.000	1	0	0.000																15	2	0.133	42	0	0.000
Total	71	1	0.014	38	1	0.026	6	0	0.000	54	3	0.056	17	1	0.059	24	5	0.208	6	1	0.167	588	40	0.068	467	19	0.041

	Troll District																											
	111			112			113 & 154			114			116 & 157			181			189			TOTAL					
Stat Week	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac			
2							7	0	0.000				2	0	0.000							9	0	0.000			
3							32	2	0.063				15	0	0.000	54	7	0.130	38	0	0.000	186	10	0.054			
4				12	0	0.000	70	0	0.000				1	0	0.000	2	0	0.000	41	1	0.024	272	7	0.026			
5	8	0	0.000	31	3	0.097	92	24	0.261				5	0	0.000	3	0	0.000	22	3	0.136	369	54	0.146			
6	68	4	0.059	98	4	0.041	123	10	0.081	6	0	0.000	16	3	0.188	2	0	0.000	10	0	0.000	703	38	0.054			
7	10	1	0.100	71	1	0.014	83	4	0.048	1	0	0.000							1	0	0.000	358	11	0.031			
8	21	0	0.000	13	1	0.077	82	8	0.098	3	0	0.000	10	2	0.200				13	2	0.154	301	29	0.096			
9				11	0	0.000	74	9	0.122				9	0	0.000				6	0	0.000	178	9	0.051			
10				25	0	0.000	32	2	0.063													118	4	0.034			
Total	107	5	0.047	261	9	0.034	595	59	0.099	10	0	0.000	58	5	0.086	61	7	0.115	131	6	0.046	2494	162	0.065			

Table 11. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook salmon counted (Frac) from the 1980 (calender year) troll fisheries in Southeastern Alaska by statistical week and PMFC area.

	PMFC Troll Area																											
	NBUT			CBUT			SBUT			SIN			SNTR			CIN			STEP			CNTR			TOTAL		
Stat Week	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
2	2	0	0.000	7	0	0.000																			9	0	0.000
3	115	7	0.061	37	2	0.054	6	0	0.000	2	0	0.000	39	1	0.026										199	10	0.050
4	89	2	0.022	77	0	0.000	26	0	0.000	5	0	0.000	125	6	0.048	5	1	0.200				12	0	0.000	339	9	0.027
5	120	8	0.067	109	28	0.257	127	4	0.031	23	0	0.000	179	19	0.106	19	5	0.263	8	0	0.000	31	3	0.097	616	67	0.109
6	53	4	0.075	187	11	0.059	21	1	0.048	35	0	0.000	366	17	0.046	4	0	0.000	68	4	0.059	104	4	0.038	838	41	0.049
7	3	0	0.000	114	6	0.053	17	2	0.118	12	0	0.000	176	5	0.028				10	1	0.100	72	1	0.014	404	15	0.037
8	34	6	0.176	125	17	0.136	18	0	0.000	22	2	0.091	134	14	0.104	6	1	0.167	21	0	0.000	16	1	0.063	376	41	0.109
9	25	0	0.000	87	12	0.138	3	0	0.000	15	0	0.000	58	0	0.000	3	0	0.000				11	0	0.000	202	12	0.059
10				43	2	0.047				4	0	0.000	60	2	0.033							25	0	0.000	132	4	0.030
Total	441	27	0.061	786	78	0.099	218	7	0.032	118	2	0.017	1137	64	0.056	37	7	0.189	107	5	0.047	271	9	0.033	3115	199	0.064

Table 12. Number of adipose clipped chinook salmon sampled (Clip), difference between the number of heads arriving at the lab and the number of adipose clips sampled (Lost), and the ratio of this difference to the number of adipose clipped chinook salmon counted (Frac) from the 1980 (calender year) troll fisheries in Southeastern Alaska by statistical week and quadrant.

	Troll Quadrant														
	Northwest			Southwest			Northeast			Southeast			TOTAL		
Stat Week	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac	Clip	Lost	Frac
2	30	0	0.000										30	0	0.000
3	166	9	0.054	6	0	0.000	44	1	0.023	4	0	0.000	220	10	0.045
4	185	2	0.011	26	0	0.000	160	6	0.037	14	1	0.071	385	9	0.023
5	266	36	0.135	127	4	0.031	221	22	0.100	55	5	0.091	669	67	0.100
6	344	19	0.055	21	1	0.048	542	26	0.048	54	2	0.037	961	48	0.050
7	134	7	0.052	17	2	0.118	256	7	0.027	15	0	0.000	422	16	0.038
8	200	24	0.120	18	0	0.000	188	18	0.096	43	4	0.093	449	46	0.102
9	156	14	0.090	3	0	0.000	83	1	0.012	25	0	0.000	267	15	0.056
10	49	2	0.041				87	4	0.046	9	0	0.000	145	6	0.041
Total	1530	113	0.074	218	7	0.032	1581	85	0.054	219	12	0.055	3548	217	0.061

The contributions of wild and hatchery tagged releases to the commercial fisheries and the standard error of these estimates for each tag code by gear type, time, and area strata are presented in Appendix A for Alaska and British Columbia tagged releases (Volume I), and Washington and Oregon tagged releases (Volume II). Appendices are under separate cover and available from ADF&G upon request (see footnote 1). Researchers and managers interested in estimates of tag group contributions by time and area strata are encouraged to reference these appendices.

The estimated numbers of commercially caught coded wire tagged chinook salmon which belong to wild stocks are tabulated by jurisdiction, release site, and tag code (Table 13). Tags were recovered from stocks of 9 different release sites. Comparisons of tag contribution by region or release site for the wild stock data must be interpreted with caution since the tagged to untagged ratio is unknown. The numbers (No.) and standard errors (S.E.) in Table 13, therefore, represent only the estimates of the number of tagged fish in the catch. Because of this, the estimated numbers of tagged wild stock fish in the commercial catch are not summed for region or release site.

Four Alaskan hatcheries contributed chinook salmon to the Southeastern Alaska fisheries: Crystal Lake, Little Port Walter, Fort Richardson, and Starrigavan (Table 14). Of the estimated 6,133 chinook salmon contributed by Alaskan hatcheries, Crystal Lake contributed 4,386 (71.5%) fish, Little Port Walter contributed 1,698 (27.7%) fish, and the remaining 49 (0.8%) fish came from Fort Richardson and Starrigavan. The troll fishery harvested 94% of the total Alaskan contribution, the gillnet fishery harvested 5%, and the purse seine fishery harvested the remaining 1%. Approximately 1.9% of the total 1980 commercial catch of chinook salmon is estimated to be of Alaska hatchery origin.

An estimated 35,439 chinook salmon from eight British Columbia hatcheries, or 11% of the total commercial catch, were harvested in Southeastern Alaska fisheries (Table 15). Robertson Creek hatchery contributed the largest number of fish (33,189 or 93.7% of the British Columbia contribution), followed by Quinsam River hatchery (1,187 fish, or 3.3%) and Big Qualicum River hatchery (663 fish, or 1.9%). The troll fishery harvested an estimated 93.4% (33,099 fish), purse seine fishery 4.6% (1,643 fish), and gillnet fishery 2.0% (697 fish) of the total estimated British Columbia contribution.

Washington tagged hatchery releases contributed an estimated 10,025 chinook salmon to the Southeastern Alaska commercial catches (Table 16). Priest Rapids hatchery on the Columbia River contributed an estimated 3,009 (30% of the total Washington contribution) fish, followed by Kalama Falls hatchery (1,660 fish, or 20%), Toutle (1,260 fish, or 12.6%), and Ringold (988 fish, or 9.9%). Seventy-two different tag codes from 22 Washington state rearing facilities were recovered in 1980. More than 99% of the Washington tagged chinook salmon were caught by the troll fishery, with the remaining fish being caught by purse seine gear.

Oregon tagged hatchery releases contributed an estimated 1,527 chinook salmon to the Southeastern Alaska harvest (Table 17). A total of 43 tag

Table 13. Estimated number of tagged wild stock chinook salmon caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.).

Region	Release Site	Tag Code	Brood Year	Number Tagged	Fishtrap		Gillnet		Purse Seine		Troll		Total	
					No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
Alaska	111-32-032	040508	1975	530			5	3			6	3	11	4
		040509	1975	455			4	2			3	2	7	3
British Columbia	ATNARKO R	020110	1975	681							6	3	6	3
		022018	1976	285							6	3	6	3
		022022	1977	5765							3	2	3	2
	KITIMAT R	022050	1976	157							6	5	6	5
	KITSUMKALUM R	020126	1976	2585							6	3	6	3
	NITINAT LAKE	020411	1975	1336							84	14	84	14
		021628	1976	1554							45	10	45	10
	S THOMPSON R	021506	1975	2978							3	2	3	2
Washington	(Data lost)	631623	1978	0							6	4	6	4
	COL. R BELOW BNVILLE	77	1977	2335							3	2	3	2
	LEWIS R	631616	1976	821							3	3	3	3

Table 14. Estimated number of chinook salmon of Alaska hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
CRYSTAL LK	BLIND SLOUGH	040102	1976			2	2			3	3	5	4
		041616	1976			222	53			4101	151	4323	160
	FISH CR ERP	041641	1976			13	5					13	5
		041705	1976			12	5					12	5
		041706	1976			6	3			9	4	15	5
		041707	1976			15	6			3	2	18	6
	111-50	041603	1976									+	
		Hatchery subtotal				270	54			4116	151	4386	160
FORT RICHARDSON	HALIBUT COVE LAGOON	041702	1976							5	4	5	4
LITTLE PORT WALTER	LITTLE PORT WALTER	031604	1976							17	5	17	5
		031605	1976							20	5	20	5
		031610	1976							52	9	52	9
		031611	1976			2	1			54	11	56	11
		031612	1976			3	3			111	13	114	13
		031613	1976			19	13			333	21	352	25
		031614	1976			17	13			367	25	384	28
		031615	1976			5	3	42	35	246	18	293	39
		031616	1976			1	0	12	11	243	20	256	23
		031617	1976							145	17	145	17
		031641	1978							9	4	9	4
		Hatchery subtotal				47	18	54	37	1597	49	1698	64
STARRIGAVAN	STARRIGAVAN BAY	041649	1976			11	10			16	12	27	16
		041650	1976							17	17	17	17
		Hatchery subtotal				11	10			33	21	44	23
Alaska Total						328	57	54	37	5751	158	6133	172

Table 15. Estimated number of chinook salmon of British Columbia hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap No.	Fishtrap S.E.	Gillnet No.	Gillnet S.E.	Purse Seine No.	Purse Seine S.E.	Troll No.	Troll S.E.	Total No.	Total S.E.
BIG QUALICUM	BIG QUALICUM R	021002	1974							7	6	7	6
		021716	1976			17	17	256	254	326	152	599	296
		021726	1977							46	45	46	45
		081826	1977							3	3	3	3
		081827	1977							3	3	3	3
		081828	1977							5	5	5	5
		Hatchery subtotal				17	17	256	254	390	159	663	300
CAPILANO	CAPILANO R	021623	1976							78	57	78	57
		021640	1977							31	21	31	21
		021641	1977							50	35	50	35
		Hatchery subtotal								159	70	159	70
FULTON R	BABINE R	022129	1976							11	4	11	4
KITIMAT	KITIMAT R	022048	1977			9	0			31	10	40	10
		022034	1977									+	
		Hatchery subtotal				9	0			31	10	40	10
PUNTLEDGE	PUNTLEDGE R	020309	1975							7	7	7	7
		021816	1976							15	8	15	8
		021817	1976							5	3	5	3
		021634	1977							92	68	92	68
		021719	1977							67	27	67	27
		Hatchery subtotal								186	74	186	74

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Table 15. Estimated number of chinook salmon of British Columbia hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.)(Continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
QUINSAM	QUINSAM R	020403	1974							103	77	103	77
		020108	1975							28	16	28	16
		021916	1976			89	47			819	131	908	139
		021736	1977							14	13	14	13
		021737	1977			134	0					134	0
		Hatchery subtotal				223	47			964	153	1187	160
ROBERTSON	ROBERTSON CR	020606	1974							63	62	63	62
		020408	1975			161	156			426	114	587	193
		020409	1975							317	91	317	91
		021305	1975					11	11	5	3	16	11
		021629	1976					15	10	280	33	295	34
		021630	1976			287	218	263	139	24306	2330	24856	2344
		021631	1976					431	299	2057	274	2488	406
		022217	1977					667	206	1170	583	1837	618
		022218	1977							2730	768	2730	768
		Hatchery subtotal				448	268	1387	336	31354	2536	33189	2573
SQUAMISH R	SQUAMISH R	021734	1978							4	4	4	4
British Columbia Total						697	273	1643	416	33099	2541	35439	2589

Table 16. Estimated number of chinook salmon of Washington hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
COWLITZ	COWLITZ R	130911	1975							14	14	14	14
		130912	1975							5	3	5	3
		131104	1975							6	4	6	4
		131304	1975							4	4	4	4
		631612	1976							14	6	14	6
		631613	1976							41	9	41	9
		631709	1976							121	21	121	21
		631710	1976							69	14	69	14
		631711	1976							63	13	63	13
		631712	1976							46	9	46	9
		631715	1976							6	3	6	3
		631717	1976							45	14	45	14
		631718	1976							93	18	93	18
		631817	1977							10	9	10	9
		Hatchery subtotal								537	43	537	43
DUNGENESS	ELWHA R	151514	1972							10	10	10	10
ELOKOMIN	ELOKOMIN R	631604	1976							49	48	49	48
ELWHA	ELWHA R	631644	1976							65	41	65	41
GRAYS RIVER	W FK GRAYS R	631743	1977							49	37	49	37

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Table 16. Estimated number of chinook salmon of Washington hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.)(Continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
KALAMA FALLS	KALAMA R	131105	1975					12	11	140	37	152	39
		631639	1976							1269	324	1269	324
		631655	1976							6	5	6	5
		631705	1976							214	48	214	48
		631719	1976							6	3	6	3
		631746	1977							13	12	13	12
		Hatchery subtotal						12	11	1648	330	1660	330
KLICKITAT	KLICKITAT R	130601	1975							35	34	35	34
		131102	1975							79	18	79	18
		631602	1976							21	7	21	7
		631605	1976							135	31	135	31
		631608	1976							159	36	159	36
		631750	1977							4	3	4	3
		Hatchery subtotal								433	62	433	62
LEWIS RIVER	LEWIS R	131614	1976							25	8	25	8
		631611	1977							3	3	3	3
		Hatchery subtotal								28	9	28	9
LOWER GRANITE	BONNEVILLE DAM	787577	1974							9	4	9	4

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Table 16. Estimated number of chinook salmon of Washington hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.)(Continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
LOWER KALAMA	FALLERT CREEK	631742	1977							61	45	61	45
PRIEST RAPIDS	COLUMBIA R	131101	1975							1620	212	1620	212
		131202	1975							466	86	466	86
		631662	1976							835	128	835	128
		631741	1977					57	40	31	18	88	44
		Hatchery subtotal						57	40	2952	262	3009	265
QUINAULT LK	SALMON R	053101	1979							2	2	2	2
QUINAULT NFH	COOK CREEK	140402	1974							6	3	6	3
		141402	1974							6	3	6	3
		140310	1975							3	2	3	2
		140410	1975							10	4	10	4
		140510	1975							11	5	11	5
		140810	1975							3	2	3	2
		053501	1976							36	15	36	15
		053601	1976							21	21	21	21
		050337	1977							4	3	4	3
		Hatchery subtotal								100	27	100	27

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Table 16. Estimated number of chinook salmon of Washington hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.)(Continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap No.	Fishtrap S.E.	Gillnet No.	Gillnet S.E.	Purse Seine No.	Purse Seine S.E.	Troll No.	Troll S.E.	Total No.	Total S.E.
RINGOLD	COLUMBIA R	130713	1975							773	144	773	144
		631609	1976							32	11	32	11
		631745	1977							183	45	183	45
		Hatchery subtotal								988	151	988	151
SIMPSON	E FK SATSOP R	631755	1977							10	10	10	10
SKAGIT	CLARK CREEK	631606	1976							20	8	20	8
		631610	1976							12	11	12	11
	SAMISH R	130301	1974							32	32	32	32
		Hatchery subtotal								64	35	64	35
SKYKOMISH	WALLACE R	631701	1976							75	48	75	48
SPRING CR NFH	BONNEVILLE DAM	055001	1976							29	29	29	29
	COLUMBIA R	050302	1975							146	146	146	146
		Hatchery subtotal								175	149	175	149

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Table 16. Estimated number of chinook salmon of Washington hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.)(Continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap No.	Fishtrap S.E.	Gillnet No.	Gillnet S.E.	Purse Seine No.	Purse Seine S.E.	Troll No.	Troll S.E.	Total No.	Total S.E.
TOUTLE	GREEN R	631640	1976							1172	631	1172	631
		631763	1977							88	63	88	63
		Hatchery subtotal								1260	634	1260	634
WASHOUGAL	WASHOUGAL R	631641	1976							628	135	628	135
		631803	1977							9	4	9	4
		Hatchery subtotal								637	135	637	135
WELLS	COLUMBIA R	130710	1975							32	22	32	22
		130910	1975							205	145	205	145
		131203	1975							18	6	18	6
		631607	1976							20	10	20	10
		631642	1976							153	25	153	25
		631643	1976							281	51	281	51
		631654	1976							65	21	65	21
		631749	1977							3	2	3	2
		Hatchery subtotal								777	159	777	159
WINTHROP	METHOW R	131113	1975							3	2	3	2
		631723	1976							24	10	24	10
		Hatchery subtotal								27	10	27	10
Washington Total								69	41	9956	826	10025	827

Table 17. Estimated number of chinook salmon of Oregon hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap No.	Fishtrap S.E.	Gillnet No.	Gillnet S.E.	Purse Seine No.	Purse Seine S.E.	Troll No.	Troll S.E.	Total No.	Total S.E.
ANADROMOUS. INC	COOS BAY	620155	1977							48	48	48	48
BONNEVILLE	TANNER CR	091605	1976							3	2	3	2
		071660	1977							2	1	2	1
		Hatchery subtotal								5	2	5	2
BUTTE FALLS	N UMPQUA R	091655	1976							18	17	18	17
	UMPQUA R	071650	1977							6	4	6	4
		Hatchery subtotal								24	17	24	17
CEDAR CREEK	NESTUCCA R	071641	1977							82	23	82	23
		071642	1977							5	5	5	5
		Hatchery subtotal								87	24	87	24
COLE RIVERS	ROGUE R	091616	1976							3	2	3	2
DEXTER PONDS	MID FK WILLAMETTE R	071742	1977							25	25	25	25
EAGLE CREEK NFH	EAGLE CR (CLACKAMAS)	091658	1976							24	7	24	7

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Table 17. Estimated number of chinook salmon of Oregon hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.)(Continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap No.	Fishtrap S.E.	Gillnet No.	Gillnet S.E.	Purse Seine No.	Purse Seine S.E.	Troll No.	Troll S.E.	Total No.	Total S.E.
ELK RIVER	COOS BAY	071109	1974									+	
FALL CREEK	FALL CR (ALSEA)	071114	1974							5	4	5	4
		071115	1974							7	4	7	4
		Hatchery subtotal								12	6	12	6
KLASKANINE	KLASKANINE R	071112	1974							3	3	3	3
MARION FORKS	N SANTIAM R. MINTO	091702	1976							7	6	7	6
		091703	1976							28	14	28	14
		071731	1977					,12	11			12	11
		Hatchery subtotal						12	11	35	15	47	19
OREGON AQUA-FOODS	YAQUINA BAY	001301	1976							167	166	167	166
	YAQUINA R	071628	1977							22	7	22	7
		Hatchery subtotal								189	166	189	166
SALMON RIVER	SALMON R	091637	1976							127	18	127	18
		091638	1976							105	15	105	15
		071643	1977							4	4	4	4
		071644	1977			2	2			33	9	35	9
		Hatchery subtotal				2	2			269	25	271	25

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Table 17. Estimated number of chinook salmon of Oregon hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.)(Continued).

Hatchery	Release Site	Tag Code	Brood Year	Fishtrap		Gillnet		Purse Seine		Troll		Total	
				No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
SOUTH SANTIAM	S SANTIAM R. FOSTER	090507	1975							6	3	6	3
		091621	1976							32	9	32	9
		091622	1976							51	17	51	17
		091626	1976							33	17	33	17
		091627	1976							39	10	39	10
		091628	1976							11	5	11	5
		091629	1976							35	15	35	15
		071926	1977					12	11			12	11
	WILLAMETTE R. FALLS	090508	1975							8	5	8	5
		090510	1975							10	5	10	5
		091623	1976							150	40	150	40
		091624	1976							176	28	176	28
		091625	1976							61	12	61	12
		091630	1976							26	7	26	7
		091631	1976							53	11	53	11
		091632	1976							39	9	39	9
		071929	1977							12	11	12	11
		071930	1977							3	2	3	2
		Hatchery subtotal						12	11	745	63	757	64
TRASK	TRASK R	071113	1974							29	20	29	20
WILLAMETTE	MID FK WILLAMETTE R	090312	1974							3	2	3	2
Oregon Total						2	2	24	15	1501	191	1527	192

codes from 16 rearing facilities were recovered. South Santiam hatchery contributed 757 fish (49.6% of the total Oregon contribution), followed by Salmon River (271 fish, or 17.8%), and Oregon Aqua-Foods (189 fish, or 12.3%). Most of the Oregon hatchery fish were caught by the troll fishery (1,501 fish, or 98.3%), with catches by purse seine gear being 24 fish (1.6%), and gillnet gear being 2 fish (0.1%).

There were no tagged chinook salmon from Idaho or California caught in the 1980 Southeastern Alaska commercial fishery.

The total contribution of coded wire tagged hatchery releases to Southeastern Alaska's 1980 (calendar year) commercial fisheries was estimated to be 53,124 chinook salmon, with an associated standard error of 2,723 fish (Table 18). Since some strata were not sampled (the winter fishery was the principal strata with limited sampling) and contribution estimates were made only from sampled strata, this total estimate probably underestimates the actual contribution of hatchery fish. With the exception of Alaska releases, not all hatchery releases contain coded wire tagged fish. An unknown number of untagged fish from non-Alaskan hatcheries therefore occur in the commercial catch. Similarly, comparisons between hatcheries and/or geographical areas may be misleading because of release groups which are not represented by a tag code. Finally, non-adherence to procedures established by the PMFC for reporting releases of untagged fish adds an unknown bias to the contribution estimates.

Table 18. Estimated number of chinook salmon of hatchery or experimental production caught in the 1980 (calendar year) Southeastern Alaskan commercial fisheries (No.) and the associated standard error (S.E.).

Gillnet		Purse Seine		Troll		Total	
No.	S.E.	No.	S.E.	No.	S.E.	No.	S.E.
1027	271	1790	406	50307	2679	53124	2723

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